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PTO/SB/17 (10-03)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 2,340.00

Complete if Known

Application Number	08/797,553
Filing Date	January 24, 1997
First Named Inventor	Richard F. Hellbaum
Examiner Name	Mark Budd
Art Unit	2834
Attorney Docket No.	LAR-15348-2

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number
Deposit Account Name

14-0116

National Aeronautics and Space Administration

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	

SUBTOTAL (1) (\$)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims -20** = X =
Independent Claims -3** = X =
Multiple Dependent =

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 2,340.00

SUBMITTED BY

Name (Print/Type)	Robin W. Edwards	Registration No. (Attorney/Agent)	39,179	Telephone	757-864-3230
Signature	Robin W. Edwards	Date	October 27, 2003		

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NASA Case No. LAR 15348-2

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Hellbaum et al.

Serial No.: 08/797,553

Examiner: Budd, Mark O.

Filed: January 24, 1997

Art Unit: 2834

For: THIN LAYER COMPOSITE UNIMORPH FERROELECTRIC DRIVER
AND SENSOR

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

BRIEF ON APPEAL

Pursuant to the Notice of Appeal filed on March 25, 2003, appellants present
herewith their Brief directed to the errors of law and fact contained in the Examiner's

RECEIVED

NOV - 7 2003

Final Rejection dated September 25, 2002.

An oral hearing is not requested.

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal
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Patents, Commissioner of Patents and Trademarks, Alexandria, VA 22313-1450 on
October 27, 2003.

Date:

10/27/03

Tina Hawks Buchanan
Tina Hawks Buchanan

11/06/2003 BABRAHA1 00000138 140116 09797553

11/06/2003 BABRAHA1 00000139 140116 08797553

11/06/2003 BABRAHA1 00000138 140116 09797553

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- 1 -

11/06/2003 BABRAHA1 00000138 140116 09797553

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REAL PARTY IN INTEREST

The Real Party in Interest is the United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

RELATED APPEALS AND INTERFERENCES

To the best knowledge of appellants, there are no appeals or interferences related to this Appeal.

STATUS OF CLAIMS

Independent claim 17 and dependent claims 18-24 are pending in the present application. Claims 17-24 are under the present appeal.

STATUS OF AMENDMENTS

Claims 17-24 have been finally rejected. No amendments were filed subsequent to the Final Rejection dated September 25, 2002.

SUMMARY OF THE INVENTION

The present invention is an electroactive device providing large mechanical output displacements, comprising:

a layered structure having a prestressing layer having a convex surface, and a piezoelectric layer having a concave surface, the convex surface of the prestressing layer being bonded onto the concave surface of the piezoelectric layer such that the prestressing layer is in tension and imparts a prestress on the piezoelectric layer such that the piezoelectric layer is in compression, wherein the prestressing layer and the piezoelectric layer are distinct from one another. Claim 17.

Additionally, the prestressing layer may include a reinforcing material (Claim 18), the piezoelectric layer may include surface electrodes (Claim 19), and the prestressing layer may be an adhesive (Claim 21). Such adhesive may be a polyimide (Claim 24). The piezoelectric layer may be a ferroelectric material (Claim 22) or a piezorestrictive material (Claim 23). Further, an electrode layer may be placed between the prestressing layer and the piezoelectric layer, and on top of the piezoelectric layer. Claim 20.

Conventional piezoelectric actuators exhibit limited mechanical displacements. The output of conventional piezoelectric devices is limited by the material's basically low piezoelectric displacement constant. Thus conventional devices of reasonable thickness (i.e. on the order of a few millimeters) offer only micrometer-sized mechanical output motion. 'Rainbow' actuators, 'Moonies', unimorphic, and bimorphic piezoelectric actuators exhibit greater mechanical output motion. However even the thinnest ceramic wafers, which exhibit the maximum observed output motion, provide a displacement limited to approximately 1 mm of motion in the z-direction for a device that is 3-4 cm long. Additionally ¼ mm thick ceramic devices are extremely brittle and fragile so that they are prone to breakage and require special handling. Specification, page 1 line 27 through page 2, line 8.

ISSUES

The issue presented for review by the Board of Patent Appeals and Interferences is:

1. Whether claims 17-24 should be rejected under 35 U.S.C. § 103 as being unpatentable over Corwin (U.S. 3,317,762) in view of Haertling (U.S. 5,589,725).

GROUPING OF CLAIMS

For each of the issues set forth above wherein a ground of rejection applies to more than one claim, it is affirmed that the rejected claims stand or fall together.

ARGUMENT

Issue - Whether claims 17-24 should be rejected under 35 U.S.C. § 103 as being unpatentable over Corwin (U.S. 3,317,762) in view of Haertling (U.S. 5,589,725).

It is the position of the Examiner that:

Corwin teaches the electro active device except the prestress layer is bonded to the convex side of the piezoelectric layer. Haertling teaches that the prestress layer can be attached to the concave side of the piezoelectric element if desired. It is only necessary to assure that the piezoelement does not go into tension as this could cause breaking of the device. Thus, it would have been obvious to one of ordinary skill in the art that the prestress layer could be attached to either the concave or convex side of the piezoelectric element. Conversely, Haertling teaches the claimed electroactive device except the prestress layer is integral with the piezoelectric element. As noted in previous office actions, making parts integral or separable has long been held to be within the skill expected of the routineer. Further, Corwin explicitly teaches providing a prestress layer as a separate layer. The Examiner agrees that Haertling teaches there are advantages to using the monolithic construction. However, Haertling, by his very discussion, teaches that a separate layer device was known and considered before the monolithic structure was preferred. Thus applicants claimed structure was known and contemplated by Haertling, or at least the combination of Haertling as two separate layers (ala Corwin) was known or contemplated. The two layer structure, while not preferred by Haertling, is taught as suitable for small load applications, and would be less costly to produce. Thus, it would have been obvious to one of ordinary skill in the art the Haertling could be provided as two separate, bonded, layers. Page 2 of Office Action mailed June 19, 2001. Typographical errors corrected.

'Distinct' is interpreted as being discernibly different. Thus even the treated layer of Haertling would be considered untreated piezoelectric portion. Certainly the two layers of Corwin are clearly distinct. Page 3 of Office Action mailed June 19, 2001. Typographical errors corrected.

Applicants' remarks of concave vs. convex prestress layer are noted, however, the broad teaching is that the piezo element should be protected from breaking via going into tension. This necessity is not limited to internal or external prestressing.

Making parts integral or separable is still seen as a valid assessment of the claimed situation. "Large" mechanical output may be desired by applicant. Corwin's output may be relatively "small" but such differences are not reflected in the actual claimed structure. Page 2 of Final Office Action mailed September 25, 2002. Typographical errors corrected.

Prestress layer - concave/convex attachment

- (a) Haertling and Corwin use different approaches with fundamentally different purposes and teach away from one another; therefore, it is not logical to someone skilled in the art to combine the two.
- (b) There is no suggestion, either express or implied, in Haertling or Corwin to combine the two.

Corwin teaches a spherical transducer, and the prestress used in Corwin has a fundamentally different purpose than the prestress in the present invention. Corwin's stress plating on the outside of the sphere seeks to contain piezoelectrically-generated, outward-directed, stresses that are inclined to explode the sphere at high signal levels; i.e., the prestress layer used by Corwin serves to protect the ceramic from breakage. The spherical configuration inherently only allows very small mechanical output motion. The

spherical shape of the transducer prevents, rather than promotes, the large mechanical output motion desired by Haertling.

When a prestress (tensile) layer is applied to the outside (convex) surface of a hollow sphere of piezoelectric material, as taught by Corwin, the combined two layers will attempt to become more concave toward the outside of the sphere; i.e., toward the prestressing layer side. The spherical shape, however, prevents the flattening of its surface at any point since that would require other points of the sphere's surface to become more convex. In Haertling's wafer, the tension/compression state results (unlike the sphere) in the two portions becoming more concave toward the reduced portion side, due to the nature of the stresses induced and the materials' reaction thereto. Therefore, the electrically active portion will always be more concave toward the reduced side. As a result, the prestressing layer could not be applied to either the concave or convex side.

Integral/Separable Elements

The "separation" of a chemically reduced portion of a monolithic structure from the unreduced portion of that monolithic structure, and the substitution with bonded layers, is neither obvious nor is it analogous to the substitution of a removable cap of a lipstick holder for a press fitted cap, *In re Dulberg*, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961), or the substitution of an integral brake drum apparatus for a single unit with rigidly secured parts, *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965), (referencing MPEP 2144.04(V)(B) and (C)). Instead, the "separation" is analogous to *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983) (referencing MPEP 2144.04 (V)(B)), showing insight that was "contrary to the understanding and expectations of the art." A copy of all cases cited herein is provided in Appendix B.

In *Schenck*, the court found the argument that the invention, a vibratory testing machine, was just making integral what had been made in four bolted pieces unpersuasive, holding that the claims were "patentable because the prior art perceived a

need for mechanisms to dampen resonance, whereas the inventor eliminated the need for dampening via the one-piece gapless support structure, showing insight that was contrary to the understanding and expectations of the art." (MPEP 2144.04 (V)(B), emphasis added) The present invention uses separate prestress and piezoelectric layers, which is explicitly taught against in Haertling. Haertling teaches a prestressed ceramic device and method, and explicitly discounts bonding of separate layers; instead, Haertling perceives a need for eliminating bonded components. Corwin uses separate layers, but is directed to a different problem than Haertling and produces a fundamentally different response. Use of separate layers to achieve internal asymmetric stress with accompanying large mechanical output is contrary to the teachings and expectations of Haertling and Corwin. Furthermore, Haertling produces the desired compression in only part of the thickness of the ceramic. The reduced portion of the ceramic in Haertling is in undesirable tension, which inhibits the reliability desired. The properties obtainable from the reduced layer depend upon the electroactive ceramic material. The present invention places the entire piezoelectric layer in compression, and the piezoelectric and prestress layers are distinct from one another.

As argued above, Haertling and Corwin use different approaches with fundamentally different purposes and teach away from one another; therefore, it is not logical to someone skilled in the art to combine the two; and there is no suggestion, either express or implied, in Haertling or Corwin to combine the two.

Haertling's invention is a monolithic, curved piezoelectric device that is internally asymmetrically stress biased (see col. 1, lines 18-20). Haertling states that none of the prior art approaches, including bonding various materials to a piezoelectric element (see col. 2, lines 30-67), could produce a piezoelectric device having the desired functionality, i.e., including the ability to produce relatively large strains and sustain moderate loads, as well as have an asymmetrical internal stress bias to produce above-plane axial displacement (see also col. 4, lines 19-26). Thus, Haertling explicitly teaches away from a bonded, layered structure to produce the desired internal asymmetrical stress. Further, Haertling's ceramic device is a monolithic, concave-shaped wafer in which the first side

(i.e., the concave side) of the wafer is a chemically reduced form of the ceramic material and is in tension, while the second side (i.e., the convex side) of the wafer is the unreduced form of the ceramic material and is in compression (col. 8, lines 26-42). With respect to this monolithic structure, Haertling states in col. 9, lines 16-19 that "use of the reduced layer 28 as the stress biasing substrate as well as one of the electrodes effectively eliminates the bonding problem usually encountered in conventional transducer operation." Elimination of bonding is reiterated as an advantage of the invention at col. 5, line 66 through col. 6, line 4 and at col. 10, lines 65-66. Thus, Haertling teaches a monolithic device in which a prestressing layer is chemically formed in-situ to actively create the curvature in the wafer without the need for bonding.

In addition, as stated above, Corwin teaches a device that has a fundamentally different purpose and results than Haertling. Therefore, there is no explicit or implied motivation to modify the monolithic device of Haertling to achieve the desired stress state with the plural, bonded layers of Corwin, nor is there a reasonable expectation of success from such modification, in view of the prior art reviewed by Haertling. Thus, the present invention shows insight that is contrary to the understanding and expectations of the art cited by the Examiner, as well as the art cited by Haertling. Haertling teaches away from using separate, bonded layers. Haertling does not merely state that bonded layers would provide inferior properties; instead Haertling states that bonded layers would be unlikely to produce the result sought, which is the ability to produce relatively large strains and sustain moderate loads, as well as have an asymmetrical internal stress bias to produce above-plane axial displacement (see col. 4, lines 19-26).

Therefore, the combination of Haertling and Corwin do not teach the claimed invention as a whole, including the convex surface of the prestressing layer bonded to the concave surface of the piezoelectric layer and imparting a prestress on the piezoelectric layer such that the piezoelectric layer is in compression.

The rejection of all claims based on Corwin or Haertling is accordingly without basis and should not be sustained.

Respectfully submitted,

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October 27, 2003

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APPENDIX A
CLAIMS INVOLVED IN APPEAL

Claims:

17. An electroactive device providing large mechanical output displacements, comprising:

a layered structure having a prestressing layer having a convex surface, and a piezoelectric layer having a concave surface, the convex surface of the prestressing layer being bonded onto the concave surface of the piezoelectric layer such that the prestressing layer is in tension and imparts a prestress on the piezoelectric layer such that the piezoelectric layer is in compression, wherein the prestressing layer and the piezoelectric layer are distinct from one another.

18. The device of claim 17, wherein the prestressing layer includes reinforcing material.

19. The device of claim 17, wherein the piezoelectric layer includes surface electrodes.

20. The device of claim 17, further comprising:

an electrode layer placed between the prestressing layer and the piezoelectric

layer; and

an electrode layer placed on top of the piezoelectric layer.

21. The device of claim 17, wherein the prestressing layer is an adhesive.

22. The device of claim 17, where the piezoelectric layer is a ferroelectric material.

23.. The device of claim 17, wherein the piezoelectric layer is a piezorestrictive material.

24. The device of claim 21, wherein the adhesive is a polyimide.

APPENDIX B

CITED CASES

- (1) *In re Dulberg*, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961)
- (2) *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)
- (3) *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)

In re DULBERG

(CCPA)

129 USPQ 348

Decided May 5, 1961

Appl. No. 6627

U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Board of Appeals--Issues determined (§ 19.30)

Court of Customs and Patent Appeals--Issues determined--Ex parte patent cases (§ 28.203)

Examiner rejected claims on N in view of P and also on P alone; Board affirmed rejection but also held claims unpatentable over P in view of N; on appeal, court need not consider contention that examiner's rejection on P alone was withdrawn before appeal reached Board since it was proper for Board to rely on P alone or P in view of N, as a ground of rejection under Patent Office Rule 196(b); accordingly, those grounds are properly before court.

Particular patents--Holder

Dulberg, Holder for Soft Sticks, claims 1 and 2 of application refused.

Case History and Disposition:

Page 348

Appeal from Board of Appeals of the Patent Office.

Application for patent of Murray Dulberg, Serial No. 550,974; Patent Office Division 40.

From decision rejecting claims 1 and 2, applicant appeals. Affirmed.

Attorneys:

MURRAY DULBERG, pro se.

CLARENCE W. MOORE (RAYMOND E. MARTIN of counsel) for Commissioner of Patents.

Judge:

Before WORLEY, Chief Judge, RICH, MARTIN, and SMITH, Associate Judges, and KIRKPATRICK, Judge.

*

Opinion Text

Opinion By:

SMITH, Judge.

This is an appeal from the decision of the Board of Appeals of the United States Patent Office affirming the rejection by the primary examiner of claims 1 and 2 of appellant's application No. 550,974 for a patent on a holder for "soft stick such as lipsticks."

Claim 1, which is representative of the appealed claims, is as follows:

1. A holder for soft sticks comprising: an elongated holder body having an internal opening extending longitudinally therethrough, a carrier having a longitudinally extending peripheral wall for frictionally engaging one end of a soft stick and having a laterally extending wall for limiting movement of said soft stick in one direction relative to said peripheral wall, said carrier being open at both ends and said laterally extending wall forming a passage of lesser diameter than the internal opening extending through the longitudinally extending peripheral wall which frictionally engages the soft stick in assembled position, said carrier being positioned in said holder body internal opening, cooperative means between said carrier and said holder body for advancing and retracting said carrier relative to said holder body, and the bottom opening of said holder body and of said passage formed by the laterally extending wall of said carrier being sufficiently large to permit an instrument having sufficient surface engaging area

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to push against the bottom of the soft stick without passing through the soft stick, for ejecting the soft stick from said carrier, to pass through said bottom opening of the holder body and through said passage of the carrier.

The references relied on are:

Noble 1,632,765, June 14, 19270

Peterson 2,273,138, Feb. 17, 1942

Appellant's application discloses a lipstick holder comprising relatively rotatable inner and outer sleeves and a carrier which engages one end of the lipstick. The carrier is mounted within the inner sleeve. The sleeves and carrier are so arranged and connected that relative movement between the sleeves will cause the carrier to be longitudinally advanced or retracted. The sleeves and carrier are open at both ends and a removable cap is provided which may be fitted over one end of the outer sleeve, thus closing one end of the assembly. The carrier is provided at one end with an inwardly extending annular bead which serves as a stop for an end of a lipstick inserted from the other end of the carrier. When a worn lipstick is to be replaced, a pencil or similar instrument may be inserted through the annulus of the bead portion of the carrier to push the remainder of the old lipstick out of the carrier, after which a new lipstick may be inserted.

The Noble patent shows an arrangement of inner and outer sleeves, carrier and removable end cap similar to that of appellant, but the carrier is not provided with a bead or similar restriction.

The Peterson patent also shows an arrangement of relatively rotatable inner and outer sleeves and carrier similar to appellant's, one end of the assembly being closed by a cap which is said to be held in place by a "pressed fit." The carrier is provided with an inwardly extending annular bead which limits the movement of the lipstick in one direction, and the end of the carrier adjacent this bead is open, but provided with an inwardly extending flange, while the opening in the opposite end of the carrier is unrestricted.

[1] The examiner rejected the appealed claims on Noble in view of Peterson and also on Peterson alone. The board affirmed the rejection but also held the claims unpatentable over Peterson in view of Noble. Appellant contends that the examiner's rejection on Peterson alone was withdrawn before the appeal reached the board. We need not consider whether that is the case since it was proper for the board to rely on Peterson alone or Peterson in view of Noble, as a ground of rejection under Patent Office Rule 196(b). Accordingly, those grounds are properly before us, *In re Ray*, 35 CCPA 1088, 167 F.2d 504, 77 USPQ 375, and we shall consider them first.

As stated by the board, the Peterson structure fully meets the terms of the appealed claims if the cap which is said to be "press fitted" is removable. Appellant contends that in a press fit the parts fit so tightly that they cannot be manually removed and that accordingly one end of Peterson's assembly is permanently closed by the cap, so that there is no opening extending longitudinally through the holder, as required by the claims.

We agree with the board that, whether Peterson's cap is intended to be manually removable, it would be obvious to make it so. Whether a cap is made manually removable depends upon whether it is desired to gain ready access to the space covered by the cap. If it were considered desirable for any reason to obtain access to the end of Peterson's holder to which the cap is applied, it would be obvious to make the cap removable for that purpose. That could be done by anyone having the ordinary skills of this art simply by making the fit sufficiently loose to permit the ready manual removal of the cap. No specific prior art teaching would be necessary to show that operation. Even so, we find such a teaching in the Noble patent which shows a removable cap in a structure closely similar to that of Peterson.

A large part of appellant's argument is directed to his method of removing the used lipstick by pushing it out of the carrier, but the appealed claims are not drawn to that method. The claims are directed to a structure, each element of which is old in Peterson. The Peterson structure fully satisfies the terms of each of the appealed claims with the addition of the obvious expedient of making the cap readily removable. Accordingly, it is immaterial that neither Peterson nor Noble actually suggests pushing the remnant of the old lipstick out of the carrier.

Moreover, it is both obvious and common to remove obstructions from the interior of tubular articles by pushing them out by means of an inserted member. Examples are found in many fields such as pipe cleaners, plumber's snakes and gun cleaning rods. We are of the opinion that it would be obvious to remove the lipstick from Peterson's device by pushing it out of the unrestricted end of the carrier by an element inserted through the opening in the restricted end, and that it would also be obvious to make the cap removable for that purpose.

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For the reasons given, we find that the appealed claims are unpatentable over Peterson, either alone or in view of Noble, and it is therefore unnecessary to consider the rejection on Noble in view of Peterson.

The decision is *affirmed*.

Footnote * United States Senior Judge for the Eastern District of Pennsylvania, designated to participate in place of Judge O'CONNELL, pursuant to provisions of Section 294(d), Title 28, United States Code.

- End of Case -

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In re LARSON, RUSSLER, AND MELDAHL

(CCPA)

144 USPQ 347

Decided Feb. 4, 1965

Appl. No. 7282

U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Patentability -- Divided and integral parts (§ 51.35)

Words and phrases (§ 70.)

While brake disc and clamp of reference comprise several parts, they are rigidly secured together as a single unit; constituent parts are so combined as to constitute a unitary whole, which is "integral" within meaning of claim; "integral" is not limited to a fabrication of parts from a single piece of metal, but is inclusive of other means for maintaining parts fixed together as a single unit; moreover, use of one piece construction instead of reference structure is matter of obvious engineering choice; claim is refused.

2. Claims -- Functional -- Defining ingredient, structure or use (§ 20.453)

Claim does not distinguish over reference by inclusion of functional statement relating to conveyance of heat since it defines no structure not shown by reference which would afford unobvious heat transmission.

3. Patentability--Aggregation or combination--Omission of part (§ 51.161)

If feature of reference structure is not desired, it would seem a matter of obvious choice to eliminate it and the function it serves; claim is refused.

Particular patents--Fluid Carrier

Larson, Russler, and Meldahl, Mobile Fluid Carrier Unit and Vehicle Assembly Thereof, claims 12, 15, and 16 of application refused.

Case History and Disposition:

Page 347

Appeal from Board of Appeals of the Patent Office.

Application for patent of Arne V. Larson, Leveret C. Russler, and Waldemar J. Meldahl, Serial No. 737,656, filed May 26, 1958; Patent Office Division 47. From decision rejecting claims 12, 15, and 16, applicants appeal. Affirmed.

Attorneys:

ALLAN B. WHEELER and WHEELER, WHEELER & WHEELER, both of Milwaukee, Wis., for appellants.

CLARENCE W. MOORE (L. F. PARKER of counsel) for Commissioner of Patents.

Judge:

Before WORLEY, Chief Judge, and RICH, MARTIN, SMITH, and ALMOND, Associate Judges.

Opinion Text**Opinion By:**

ALMOND, Judge.

This is an appeal from the decision of the Patent Office Board of Appeals affirming a rejection of claim 12, and the examiner's refusal to allow claims 15 and 16, which were substituted for finally rejected claims 1 and 6. Eight claims were allowed.

Appellants' application ¹ relates to a mobile fluid carrier unit and a vehicle assembly thereof.

Claims 12 and 15 are illustrative:

12. In a vehicle, a wheel hub having annular rim flanges, each flange having an annular clamping seat, a flexible-walled casing having beads engaged with the respective seats, clamping means fastened to the respective rim flanges in clamping engagement with said beads to hold said beads to said seats to form a fluid-tight fluid cargo enclosure bounded by said wheel hub and said flexible-walled casing, and frictional brake means, said means including a brake drum integral with a said clamping means, whereby to transmit heat from the brake drum to said wheel hub for transmission to a fluid cargo disposed within said fluid-tight enclosure.

15. A transport unit having a relatively light frame, said frame consisting only of a longitudinally extending relatively light central frame element and a relatively light tubular transverse axle attached to said central frame element, a pair of relatively light wheel hubs mounted on said axle, and a pair of flexible-walled carrier casings, a said carrier casing being disposed about said axle directly adjacent to each side of said central frame element, said wheel hubs being sealed to said carrier casings to enclose the entire cargo space of said unit.

Further illustrative of the claimed invention, Figs. 3 and 4 of the drawings are reproduced below.

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

The three main features of the fluid carrier portrayed in the drawings are:

- (1) A flexible walled wheel 35 in which the fluid is carried.
- (2) A towbar 5 and hollow axle 25.
- (3) A frictional brake comprising brake shoe 60 and brake drum 44.

Each unit of the assembly comprises a sectional towbar 5, which is centrally affixed to an axle 25. The opposite ends of the towbar are provided with coupling means 15, 23 which serve to connect with like couplings on other identical units to provide a vehicle of several units. A pair of flexible-walled rolling tanks 35 which serve as wheels are mounted on the ends of the axles. Each tank or wheel has a hub portion which includes a tubular member 36 through which the axle extends and annular members 40, 48 at the respective inner and outer ends of the tubular member 36 spaced to support the rim flanges of flexible casing 35 which is clamped thereon by means of rings 45 and 57. Clamp ring 45 carries the rotatable brake drum 44 engagable by a nonrotary brake shoe 60 operated by fluid pressure cylinder 61. Application of fluid to cylinder 61 exerts braking pressure to brake drum 44 which serves to decelerate each wheel 35. Inside each casing is a discharge hose 65 through which the casing may be filled or drained. A second hose 75 serves as a vent pipe. The brake drum 44 is integral with each inboard clamping ring 45.

The references relied on below are:

- Le Clair et al. (British) 573,726, December 4, 1945
- Arpin 2,548,190, April 10, 1951
- Albee 2,952,468, September 13, 1960
- Tuttle et al. 2,974,970, March 14, 1961

Like appellants' combination, Le Clair et al. discloses mobile tanks suitable for the transportation of liquids. The specification and drawings disclose a pair of tank wheels rotatably mounted on a transverse axle with a towbar centrally attached to the axle. The towbar has rear and front coupling means for disengagably attaching units. The

hollow wheels of Le Clair et al. are formed of two dishshaped inflexible shells welded to the inside of a T-ring encircled by a steel band. The wheels are mounted on an axle fixed in an axle tube. The specification states that "If so desired, each of the tank-wheels may be provided with an over run brake assembly * * *."

Both Arpin and Albee show the use of a hollow wheel-like flexible body mounted on an axle as a mobile fuel carrier. The Arpin patent states that his "tank is provided with a central axle which does not rotate with the tank, the reservoir revolving thereabout pursuant to ground friction when the axle is pulled as during towing." It is also stated that the axle is hollow. The Arpin drawings show that the flexible body is filled with fluid under pressure through one end of the hollow axle and that the tank is vented through the other end of the axle with a vertical pipe communicating with the axle to control the venting of air. Both Arpin and Albee show a tubular towbar and a frame affixed to the axle for towing the carrier.

Tuttle et al. discloses a fluid transporting vehicle having disc brakes rather than drum brakes as claimed by appellant. The Tuttle vehicle has one flexible-walled, cylindrical, fluid-carrying wheel. A hollow axle extends

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through the wheel and is connected to the frame of the vehicle at its ends. Brake discs are provided on a sleeve which is mounted on the axle between the wheel hub and the end of the axle. The sleeve is attached to a casing clamp on the wheel hub by bolts. The brake disc and hydraulically actuated brake pads are spaced away from the wheel hub by the sleeve.

The appealed claims were considered individually by the examiner and the board and were rejected on independent grounds.

Claim 12 was rejected as unpatentable over Tuttle et al. The board regarded the brake disc of Tuttle et al. as the equivalent of a brake drum and considered the disc to be integral with the clamping means for the bead of the flexible casing.

Claim 12 calls for: (1) "a wheel hub having annular rim flanges, each flange having an annular clamping seat"; (2) "a flexible-walled casing having beads engaged with the respective seats"; (3) "clamping means fastened to * * the rim flanges" to hold the beads to "form a fluid-tight fluid cargo enclosure"; (4) "frictional brake means" and (5) "a brake drum integral with a said clamping means."

Limitations (1), (2), (3) and (4) are clearly met by Tuttle et al. As to limitation (5) instead of a brake *drum* integral with the clamping means, Tuttle et al. show a brake *disc rigidly secured* to the clamping means. In this connection the board stated:

The essential difference between the Tuttle et al. construction and that of claim 12 is the manner of connecting the brake disc or drum to the wheel hub. While the term "integral" is not limited to a fabrication of the parts from a single piece of metal, but is inclusive of other means for maintaining the parts fixed together as a single unit * * *.

[1] While the brake disc and clamp of Tuttle et al. comprise several parts, they are rigidly secured together as a single unit. The constituent parts are so combined as to constitute a unitary whole.

Webster's New International Dictionary (Second Edition) defines "integral" as "(2) Composed of constituent parts making a whole; composite; integrated."

We are inclined to agree with the board's construction of the term "integral" as used in claim 12. Then, too, we are inclined to agree with the position of the solicitor that the use of a one piece construction instead of the structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice. In re Fridolph, 50 CCPA 745, 309 F.2d 509, 135 USPQ 319.

[2] Claim 12 includes a functional statement relating to the conveyance of heat from the brake drum to the hub of the wheel for transmission to the fluid cargo. This statement is predicated on appellants' "brake drum integral" with the clamping means. The board reasoned that:

* * * this feature does not contribute to a better heat transfer in appellants' construction because the heat dissipated by the brake drum must still cross the joint between the clamping ring and the hub since the clamping ring is otherwise insulated from the cargo fluid by the flexible tire casing material positioned between the clamp and the hub. No difference in structure has been pointed out that would afford an unobvious improved heat transfer from the brake to the cargo fluid.

We agree with the board that the claim defines no structure not shown by Tuttle et al. which would afford an unobvious heat transmission and therefore does not distinguish over the applied reference. In re Mason, 44 CCPA 937, 244 F.2d 733, 114 USPQ 127.

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As correctly analyzed by the solicitor, claim 15 is drawn to a transportation unit which includes:

1. a longitudinally extending light frame
2. a relatively light tubular transverse axle attached to the frame

3. a pair of relatively light wheel hubs mounted on the axle, and
4. a pair of flexible walled carrier casings disposed about the axle and sealed to the hub.

The board sustained the examiner's rejection of claim 15 as unpatentable over Le Clair et al. in view of either Arpin or Albee. The examiner considered it obvious to replace the rigid cargo containing wheels of Le Clair et al. with the flexible-casing cargo-containing wheels of Arpin and Albee.

The board pointed out that the claim requires the frame to consist only of a central frame and a tubular transverse axle; that Le Clair et al. disclose such a frame and axle responding fully to the structure as claimed except for added features for increasing cargo capacity such as containers for housing various articles in addition to liquid cargo carried in the hollow wheels. We agree with the board that it would be obvious to dispense with the added cargo handling features of Le Clair et al. and use the frame without those features. The board reasoned that if a hollow axle without more has the potential for use as a liquid transfer in appellants' vehicle, "it likewise must have that same potential in the Le Clair et al. vehicle since we find no claimed difference in structure over the reference."

The use of flexible casings for the cargo wheels of Le Clair et al. would be obvious in view of the teachings of either Arpin or Albee, who both teach the use of tank-type flexible-walled containers for liquid cargo carrier wheels. The apparent advantages and adaptable uses for such structures would afford ample reason to a skilled designer to adapt them to the Le Clair et al. vehicle.

Claim 16 adds to claim 15 frictional brake means defined in claim 12. As previously noted, Tuttle et al. disclose a brake disc rigidly connected to a bead clamping means. With reference to claim 16 the board stated that it:

* * * calls for both the brake construction of claim 12 and the frame construction of claim 15 and is unpatentable over the references as applied by the examiner for the reasons set out * * * in our consideration of claims 12 and 15. Both the frame feature and the brake feature present to the vehicle combination only those advantages and results which are separately present individually in the prior art and this renders the combination of the two features obvious and routine.

The Le Clair et al. disclosure affords explicit suggestion for combining these features. The patent states:

If so desired, each of the tank wheels may be provided with * * * [a] brake assembly * * *. Such brake mechanism may be of known construction and may be arranged to operate brake bands applied * * * to a ring fitted to the inner or outer face of the tank-wheel.

Appellants argue that the board's holding that Le Clair et al. show the claimed structure is incorrect. They point out that the reference shows a great deal of additional framework, that it shows two axles, each solid.

[3] The added structure shown in the Le Clair et al. patent serves a particular purpose in that it increases the cargo carrying capacity. If this additional features is not desired, it would seem a matter of obvious choice to eliminate it and the function it serves. In re Listen, 30 CCPA 1223, 136 F.2d 719, 58 USPQ 481 .

The assertion that the Le Clair et al. patent is limited to two axles overlooks the fact that it specifically states that the axle assembly may comprise "either a single axle or two axles fixed in an axle tube * * *. While the axle is said to be solid, the use of a tubular axle is suggested by Arpin who shows a tubular axle connected directly to a towbar.

Appellants assert that there is "no reference which shows a trailer having two flexible-walled cargo carrying casings." The Tuttle et al. disclosure refutes that assertion since it clearly shows a trailer having two flexible-walled cargo-carrying casings in tandem relation. Aside from the flexible feature, Le Clair et al. shows such a structure with the casings in side-by-side relation.

Upon consideration of the record before us and the arguments of counsel, we are of the opinion that appellants' claimed improvements in mobile fluid carrier units are suggested by the references cited.

The decision of the board is *affirmed*.

Footnotes

Footnote 1. Serial No. 737,656, filed May 26, 1958.

- End of Case -

FULL TEXT OF CASES (USPQ2D)
All Other Cases

Carl Schenck, A.G. v. Nortron Corporation (CA FC) 218 USPQ 698

Carl Schenck, A.G. v. Nortron Corporation

U.S. Court of Appeals Federal Circuit
218 USPQ 698

Decided July 21, 1983
No. 83-675

Headnotes

PATENTS

1. Patent grant -- In general (§ 105.01)

Disclosure of invention found to have revolutionized industry is example of patent system's ideal working; patentee's or licensee's enjoyment of widespread sales is example of incentive-useful arts promoting element in patent system.

2. Patent grant -- In general (§ 105.01)

Patents and licenses are exemplifications of property rights.

3. Patent grant -- In general (§ 105.01)

Participation in U.S. patent system, as patentees and as licensees, is available to citizens and non-citizens alike.

JUDICIAL PRACTICE AND PROCEDURE

4. Procedure -- Court of Appeals for the Federal Circuit (§ 410.03)

Counsel's arguments and interpretations of prior art cannot supplant requirement for presentation of testimony from qualified witnesses and exhibits to trial court; CAFC's review is on record made at trial; absent showing on appeal that findings were clearly erroneous in light of that record, or that conclusions based on those findings were incorrect as a matter of law, judgment appealed from must be affirmed.

PATENTS

5. Patentability/Validity -- Obviousness -- Person of ordinary skill in art (§ 115.0902)

Patentability/Validity -- Obviousness -- Evidence of (§ 115.0906)

Effort to limit focus of inquiry to structural difference from prior art and then to show that difference alone would have been obvious is not proper under statute, which requires that invention be considered "as a whole"; emphasis on nonobviousness is one of inquiry, not quality; structure effectuating inventor's insight that was contrary to art's understanding and expectations would not have been obvious to those skilled in art.

6. Patent grant -- In general (§ 105.01)

Patent, under statute, is property; nowhere in any statute is patent described as monopoly; patent right is but right to exclude others, very definition of "property."

PATENTS

7. Patent grant -- In general (§ 105.01)

TRADEMARKS AND UNFAIR TRADE PRACTICES

Unfair competition -- Federal antitrust issues (§ 395.05)

That property right represented by patent, like other property rights, may be used in scheme violative of antitrust laws creates no "conflict" between laws establishing any of those property rights and antitrust laws; antitrust laws, enacted long after original patent laws, deal with appropriation of what should belong to others; valid patent gives public what it did not earlier have.

PATENTS

8. Patent grant -- In general (§ 105.01)

Patents are valid or invalid under statute 35 USC.

9. Patent grant -- In general (§ 105.01)

It is but obfuscation to refer to patent as "the patent monopoly" or to describe patent as "exception to the general rule against monopolies"; moreover, that description is irrelevant when considering patent questions, including question of estoppel predicated on prosecution history.

10. Patentability/Validity -- Obviousness -- References and claims as whole (§ 115.0904)

Modification unwarranted by reference's disclosure is improper.

Particular patents -- Testing Machine

3,182,511, Federn, Geiss, and Seibert, Vibratory Testing Machine, Particularly Balancing Machine, judgment of patent validity and infringement of claims 1, 2, and 5 affirmed.

Case History and Disposition:

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Appeal from District Court for Middle District of Tennessee, Nixon, J.

Action by Carl Schenck, A.G. against Nortron Corporation, for patent infringement. From judgment for plaintiff, defendant appeals. Affirmed.

Attorneys:

Sheldon W. Witcoff, Chicago, Ill. (Ronald E. Larson, Chicago, Ill., of counsel) for appellant.

Robert B. Russell, Boston, Mass. (David A. Tucker and Thomas H. Peebles, III, both of Boston, Mass., on the brief) for appellee.

Judge:

Before Markey, Chief Judge, and Friedman and Nies, Circuit Judges.

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Opinion Text

Opinion By:

Markey, Chief Judge.

Appeal from a judgment of the District Court for the Middle District of Tennessee holding U.S. Patent No. 3,182,511 ('511 patent) valid and finding claims 1, 2, and 5 of that patent infringed by Nortron Corporation (Nortron). We *affirm*.

Background

The investors are Federn, Geiss, and Seibert, who assigned the '511 patent to Carl Schenck, A.G. (Schenck). As assignee, Schenck sued Nortron, R.H. Scales Co. (Scales), and Myers Tire Supply Co. (Myers). The case has been stayed respecting Scales and Myers. Nortron manufactures the 7402 wheel balancer accused as an infringement. Nortron was selling a wheel balancer in competition with Schenck as early as 1973. That product did not infringe the '511 patent, which issued in 1965 and expired in 1982. In 1979, Nortron shifted to the model 7402 balancer. [1] [2] [3] [1,2,3] Nortron's brief characterizes Schenck as a "German monopolist." That denigration, whether inserted in a vain hope of prejudicing the court or otherwise, has no support in the present record. Disclosure of an invention found to have revolutionized an industry is but a classic example of the ideal working of the patent system. If a patentee or licensee enjoys widespread sales, that too is but an example of the incentive-useful arts promoting element in the patent system. Patents and licenses are exemplifications of property rights. Further, and happily, participation in the U.S. patent system, as patentees and as licensees, is available to citizens and non-citizens alike.

The '511 patent discloses and claims a machine for sensing vibration resulting from an imbalance in what are here called "wheels" (tires, wheels, turbine rotors, and other rotating elements). Claim 1 is representative:

1. A vibratory testing machine, comprising a rigidly fixed base structure 13, a vibratory workpiece-holding structure 14 having means for accommodating a work-piece 10 and defining a given measuring direction M, supporting means 15 joining said structures and having a plurality of supporting rod members 15 forming a parallelogram linkage yieldable in said measuring direction M and stiff in planes transverse to said direction M (i.e., in direction A) to limit vibration of said holding structure 14 to said measuring direction M, said vibratory holding structure 14 and said base structure 13 as well as said supporting means 15 forming jointly a single integral and gaplessly continuous piece.

Judge Nixon entered a comprehensive unpublished Memorandum constituting his Findings and Conclusions, accompanied by an Order finding in favor of Schenck and setting a date (now stayed) for hearing on damages. In that Memorandum, Judge Nixon: described the physical phenomena involved in wheel balancing; set forth the long-term employment of soft-bearing balancer machines, their disadvantages, and their replacement by the hard-bearing machine of the invention; noted the belief of practitioners before the invention was made that resonance damping was required in hard-bearing machines, and the present inventor's contrary teaching that damping should be avoided; listed basic principles of patent law; held irrelevant the assertion that the invention had not been used in automotive balancers sold by Schenck in the United States; characterized as *passe'* the defense that making a support structure in one piece "does not rise to the standard of invention", in view of recognition in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 451 (1966), that the standard is nonobviousness; surveyed the evidence supporting nonobviousness, particularly the abandonment of soft-bearing for hard-bearing machines; rejected the defense of no causal relationship between the invention and that industry shift; dismissed the argument that "a consolidation of elements can never rise to the level of patentable invention"; rejected the

defense of fraud for failure of the drawing to disclose more than one support structure to the Patent and Trademark Office; rejected as not prior art an earlier patent of Federn; rejected the assertion of no infringement based on model 7402's allowance of axial movement, interpreting the claims as contemplating limited motion in the measuring direction and significantly more limited (i.e., less) motion in the axial direction; stated that he was interpreting the claims in the "manner of those skilled in the art," citing *Autogiro Co. of America v. U.S.*, 384 F.2d 391, 155 USPQ 697, (Ct. Cl. 1967); quoted the description in a Nortron patent application of the model 7402 machine; found that description persuasive of the similarity of both parties' mechanisms; and rejected Nortron's tests as proof of noninfringement.

Issues

Did Judge Nixon err in: (1) holding the '511 patent valid; or (2) finding claims 1, 2, and 5 infringed by Nortron's model 7402 wheel balancing machine?

Opinion

[4] [4] Nortron argues the present appeal on substantially a de novo basis. Counsel's arguments and interpretations of prior art cannot, however, supplant the requirement for presentation of testimony from qualified witnesses and exhibits to the trial court. Our review is on the record made at trial. Absent a showing on appeal that findings were clearly erroneous in light of that record, or that conclusions based on those findings were incorrect as a matter of law, the judgment appealed from must be affirmed.

Nortron says it bases the present appeal on three "issues". The first and third "issues" relate to infringement, the second to validity. We consider the latter first.

A. Validity

Nortron points to recognition in the '511 patent of a prior support structure in which legs and cross-pieces are bolted together with notch-and-tooth engaging faces. From that it argues that the present invention was merely the forming of that structure in one piece, a step, Nortron says, that would have been obvious to those skilled in the art at the time the invention was made. 1

The unchallenged testimony of record establishes that the legs of the notch-and-tooth design are broad leaf springs. Thus, far from eliminating damping (as Nortron asserts) the notch-and-tooth design *introduces* damping, as was pointed out to and accepted by the examiner during prosecution of the application that resulted in the '511 patent. The uncontested testimony of record further establishes that those skilled in the art believed that damping was required in hard-bearing balancers. Judge Nixon's finding that "many practitioners introduced damping into their measuring devices in order to suppress resonance" is amply supported in the record. That finding is not only not shown on appeal to have been clearly erroneous, it is not mentioned by appellant.

Nortron has pointed to nothing of record that would suggest the replacement of a structure formed of bolted leaf springs and cross bars with a single, unitary, gapless (and thus rigid) structure. On the contrary, the record reflects that that step would remove the flexibility present and thought to be necessary in the former.

[5] [5] In its argument that the invention here is but making integral what had earlier been made in four bolted pieces, Nortron seeks to limit the focus of inquiry to a structural difference from the prior art and then to show that that difference *alone* would have been obvious. That effort is not proper under the statute, which requires that an invention be considered "as a whole," 35 U.S.C. §§103. As Judge Nixon recognized, "the emphasis on nonobviousness is one of inquiry, not quality". *Graham v. John Deere Co.* 383 U.S. 1, 148 USPQ 459 (1966). The inquiry here establishes that the present invention includes the inventor's elimination of the need for damping. Because that insight was contrary to the understanding and expectations of the art, the structure effectuating it would not have been obvious to those skilled in the art. *United States v. Adams*, 383 U.S. 39, 148 USPQ 479 (1966).

Indeed, hard-bearing balancers had been known since the early 1920's, but had not been successful because of the

art-perceived need for mechanisms to dampen resonance. That the *means* of eliminating the need for damping was the one-piece gapless support structure described in the claims detracts in no manner from the contribution to the art made by the inventor. The present invention

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was a key to the unlocking of a pre-accepted barrier and to the resurrection of hard-bearing balancers, which then replaced widely-used soft-bearing balancers. Nortron was and is at liberty to employ, as it once did, a support formed of separate elements bolted together. That it felt impelled to abandon earlier devices and to employ the unitary structure of the invention is evidence of the latter's value.

As Judge Nixon noted, the *only* direct evidence on the obviousness issue was that of Professor Muster, who described the invention and its relation to the notch-and-tooth design as set forth here. Nortron's second "issue" is thus unavailing, for Judge Nixon's conclusion that the inventions set forth in claims 1, 2 and 5 of the '511 patent would have been nonobvious is fully supported in the record and free of error. 2

B. Infringement I

[6] [7] [8] [9] [6,7,8,9] Nortron asserts as its first "issue" that there is a file wrapper estoppel, ignored by Judge Nixon, under which the claims cannot cover a balancer like its model 7402 that permits vibrations in an axial direction of as much as $\frac{1}{4}$ those in the measuring direction. 3 The assertion rests on the claim language, "supporting means * * * yieldable in said measuring direction and stiff in planes transverse to said direction to limit vibration of said holding structure to said measuring direction," and a statement in the patent specification, "It is an object of our invention to devise a vibratory testing machine which more reliably avoids the above-mentioned undesired yieldability in directions transverse to the vibratory mounted workpiece holding or journalling structure."

In Nortron's main brief, it insisted that the claims must be read as though they "necessarily excluded vibration in the axial direction." Reminded by Schenck's brief of the fact established in the record, i.e., that all skilled in the art have always known that exclusion of vibration in the axial direction is impossible, Nortron's reply brief no longer says the claims exclude vibration in the axial direction, but that they do not encompass machines with axial vibrations of more than an "appreciable or measurable extent."

As part of its file wrapper argument concerning axial vibration, Nortron necessarily says Schenck wrote the claims narrowly in respect of the amount of permissible axial vibration to distinguish them from the prior art. Nortron's difficulty is that the claim language it relies on was not inserted to avoid prior art. On the contrary, the prosecution history makes plain that the argument for patentability focused on the support structure clearly present in the accused machine.

Judge Nixon did not ignore the argument surrounding the cited claim language. On the contrary, he discussed that argument thoroughly and properly rejected it. As presented at trial, the argument was the unsupportable one initially stated here, i.e., that the claims envisage total absence of axial vibration. Further, the uncontested expert testimony was that the object of the invention was to eliminate signals caused by axial or transverse vibration, not all axial vibration itself. The inventor employs long rods to avoid an influence of axial vibration on the output of his transducers. Nortron employs a bridge circuit to cancel out the influence of axial vibration in the 7402 model. Thus, both machines limit the output of the detection device to the signal from vibration in the measuring direction.

There is simply no basis in the record for the argument based on counsel's claim interpretation and counsel's description of model 7402's operation. The testimony at trial of Schenck's expert Muster, and the description by Nortron's model 7402 designer Curchod, fully support Judge Nixon's interpretation of the claims as permitting "a limited pedestal motion in the measuring direction and a significantly more limited pedestal motion in the axial direction." Judge Nixon properly read

the claims as would one skilled in the art, Autogiro Co., supra, and Nortron has shown no error in that action on this record. Hence, Nortron's first "issue" reflects no basis for a determination of error in the finding of infringement in this case.

C. Infringement II

Nortron correctly points out that there must be a consistent interpretation of the claims, *Smith v. Hall*, 301 U.S. 216 (1937), then asserts as its third "issue" that Judge Nixon read the "rigidly fixed base structure" language of the claims (in finding infringement) in a manner that makes that limitation readable on the prior art Rouy patent No. 2,329,654 ('654 patent).

The limitation "rigidly fixed base structure" is read by Schenck on a plate of model 7402 to which the bearing support structures are welded. The plate is in turn bolted to a pedestal. In an effort to restrict the claim limitation to a massive base with feet bolted to short foundations, Nortron reads into the claims the description of the entire machine shown in the drawings of the '511 patent. The language of the limitation itself is, however, clearly readable on the bolted plate of model 7402. The language is not ambiguous, and nothing in the prior art of record or in the prosecution history requires that it be read only in the light of the specification or restricted to the embodiment shown in the drawings and described in the specification of the '511 patent.

[10] [10] If "rigidly fixed base structure" be read as encompassing its plate, says Nortron, it is equally readable on certain elements of the Rouy '654 prior art patent. That argument, however, turns on a conjectural modification of the disclosure of the '654 patent. Modification unwarranted by the disclosure of a reference is improper. See *In re Imperato*, 486 F.2d 585, 587, 179 USPQ 730, 732 (CCPA 1973); *In re Beigel*, 292 F.2d 955, 130 USPQ 206, (CCPA 1961). In its modification, Nortron labels the outer end portions of what Rouy calls "flexible connections" as "base plates" and adds numerical designations to them. There is no justification for that modification. Rouy did not regard or describe those end portions as base plates; nor did he describe them in any manner; nor did he disclose their dimension in the direction of his shaft axis. The Rouy '654 patent, disclosing a support structure with gaps and numerous other differences from the structure claimed in the '511 patent, has little if any relevance, as was apparently recognized by the examiner in the Patent and Trademark Office who cited the '654 patent, but did not apply it to the claims.

The interpretation of the present claims by Judge Nixon was consistent throughout his consideration of the validity issue, the prior art, and the infringement issue. There is, accordingly, no basis in Nortron's third "issue" for a determination of error in the finding of infringement in this case.

Conclusion

Nortron having failed to establish error in the record, the judgment appealed from must be affirmed.

Affirmed.

Footnotes

Footnote 1. In its main brief, Nortron added as part of the prior art associated with the notch-and-tooth design, the knowledge that damping was undesirable. Schenck in its brief pointed out that that unpublished knowledge was limited to Schenck in Germany and thus could not be "prior art" under 35 U.S.C. §102(a). In its reply brief, Nortron rewrote its second issue to substitute "axial yieldability" for "damping". The substitution may be made in

the text of this opinion without change in the reasoning or result.

Footnote 2. Nortron asserts error in the finding of commercial success, pointing to testimony that Scheneck's *automotive* wheel balancers sold in the United States would not infringe the '511 patent. Nortron ignores the testimony that Sheneck's U.S. sales of balancers for other uses would infringe the '511 patent, and that the unitary support structure is employed in Schenck automotive balancers, their noninfringement arising from the absence of other elements in the claims of the '511 patent.

Footnote 3. Nortron begins its file wrapper estoppel argument with "Patents are an exception to the general rule against monopolies * * *". A patent, under the statute, is property. 35 U.S.C. §261. Nowhere in any statute is a patent described as a monopoly. The patent right is but the right to exclude others, the very definition of "property." That the property right represented by a patent, like other property rights, may be *used* in a scheme violative of antitrust laws creates no "conflict" between laws establishing any of those property rights and the antitrust laws. The antitrust laws, enacted long after the original patent laws, deal with appropriation of what should belong to others. A valid patent gives the public what it did not earlier have. Patents are valid or invalid under the statute, 35 U.S.C. It is but an obfuscation to refer to a patent as "the patent monopoly" or to describe a patent as an "exception to the general rule against monopolies." That description, moreover, is irrelevant when considering patent questions, including the question of estoppel predicated on prosecution history.

- End of Case -